DRINKING WATER

Results for 2004

The Drinking Water Program monitors drinking water to ensure it is safe for consumption and to demonstrate that it meets federal and state regulations. The Drinking Water Program currently monitors 10 water systems, which include 17 wells. Some of the wells are water sources for production water (i.e., industrial and fire safety), as well as drinking water.

Groundwater supplies the drinking water at INL. Three groundwater contaminants have impacted INL drinking water systems in the past, but concentration levels are currently below their regulatory limits: tritium at Central Facilities Area, carbon tetrachloride at Radioactive Waste Management Complex, and trichloroethylene at Test Area North/Technical Support Facility.

Parameters with primary maximum contaminant levels must be monitored at least once during every three-year compliance period. Parameters with secondary maximum contaminant levels are monitored every three years based on a recommendation by the Environmental Protection Agency. Because of known contaminants, the Drinking Water Program monitors more frequently than required. For example, the program monitors for bacteriological analyses more frequently because of past coliform bacteria detected in drinking water systems at INL facilities as a result of old pipes, stagnant water from buildings and storage tanks where water was seldom used, and biofilm.

In addition to the routine sampling, the Drinking Water Program also collects nonroutine samples. For example, a nonroutine sample is collected after a water main breaks and is repaired to determine if the water is acceptable for use before it is put back into service. During Calendar Year 2004, the Drinking Water Program received 25 requests for nonroutine sampling.

QUICK FACTS

- 10 water systems with 17 wells
- Monthly, quarterly, and annual monitoring
- Monitoring locations:
  Central Facilities Area
  Experimental Breeder Reactor I
  Gun Range
  Idaho Nuclear Technology and Engineering Center
  Main Gate
  Power Burst Facility
  Radioactive Waste Management Complex
  Test Area North/Contained Test Facility
  Test Area North/Technical Support Facility
  Test Reactor Area

FOR MORE INFORMATION

Visit our website at:
http://cleanup.inel.gov/monitoring

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RESULTS SUMMARY

Analytical results from the Experimental Breeder Reactor-I, Gun Range, Idaho Nuclear Technology and Engineering Center, Main Gate, Power Burst Facility, and Test Area North/Contained Test Facility were well below drinking water limits for all regulatory parameters.

Total coliform was not detected in any of the drinking water systems during Calendar Year 2004.

Analytical results for parameters of interest at three INL drinking water systems are summarized below.

Analytical results of interest in 2004:

Parameter[a]	Location	Results (4-Quarter Average)	MCL[b]
Carbon Tetrachloride	RWMC Distribution System	3.35 µg/L	5 µg/L
	RWMC Well [c]	4.88 µg/L	NA[d]
Trichloroethylene	TAN/TSF Distribution System	1.40 µg/L	5 µg/L
	TAN/TSF Well #2[e]	2.50 µg/L	NA
Tritium	CFA Distribution System	7,594 pCi/L	20,000 pCi/L
	CFA Well #1[c]	7,887 pCi/L	NA
	CFA Well #2[c]	6,942 pCi/L	NA

a. These parameters are known contaminants that the Drinking Water Program is tracking.

b. Maximum Contamination Level (MCL)—The highest level of a contaminant that EPA allows in drinking water. MCLs ensure that drinking water does not pose either a short-term or long-term health risk. EPA sets MCLs at levels that are economically and technologically feasible.

c. Sampled for surveillance purposes (not required by regulations to be sampled). The compliance point is the distribution system.

d. NA—Maximum contaminant level (MCL) is not applicable to the well concentration.

e. Sampled for surveillance purposes (not required by regulations to be sampled). The compliance point is the distribution system, which is after the sparger system (air stripping process).

- Central Facilities Area (CFA) - The CFA water system serves over 850 people daily. Since the early 1950s, wastewater containing tritium has been disposed of through injection wells and infiltration ponds to the Snake River Plain Aquifer at the Test Reactor Area and Idaho Nuclear Technology and Engineering Center. These wastewaters migrated south-southwest and are the suspected source of tritium contamination in the CFA water supply wells. The practice of disposing of wastewater through injection wells and infiltration ponds was discontinued. In general, tritium concentrations in groundwater have been decreasing due to changes in disposal rates, disposal techniques, recharge conditions, and radioactive decay.
- Radioactive Waste Management Complex (RWMC) - The RWMC water system supplies all of the drinking water for over 300 people daily. Various solid and liquid radioactive and chemical wastes, including transuranic wastes, have been disposed of at the RWMC. The RWMC contains pits, trenches, and vaults where radioactive and organic wastes were disposed belowgrade, as well as placed abovegrade and covered on a large pad. Carbon tetrachloride and other volatile organic compounds were detected in groundwater samples collected at the RWMC. Review of waste disposal records indicated an estimated 334,600 L (88,400 gal) of organic chemical wastes (including carbon tetrachloride, trichloroethylene, tetrachloroethylene, toluene, benzene, 1,1,1-trichloroethane, and lubricating oil) were disposed at the RWMC before 1970. High vapor-phase concentrations (up to 2,700 parts per million vapor phase) of volatile organic compounds were measured in the unsaturated zone above the water table. Groundwater models predict that volatile organic compound concentrations will continue to increase in the groundwater at the RWMC. Concentrations of carbon tetrachloride at the distribution system, the compliance point, and the point from which water is first consumed at RWMC, remain below regulatory limits. The Idaho National Laboratory is investigating an air stripping process to reduce the carbon tetrachloride and other volatile organic compound levels in the water.
- Test Area North/Technical Support Facility (TSF) - In 1987, trichloroethylene was detected in the two wells (TSF Well #1and TSF Well #2), which supply drinking water to approximately 100 employees at TSF daily. An inactive injection well is believed to be the principal source of trichloroethylene contamination at the TSF. Bottled water was provided until 1988 when a sparger system (air stripping process) was installed in the water storage tank to volatilize the trichloroethylene to levels below the maximum contaminant level. During the third quarter of 1997, TSF Well #1was taken offline, and TSF Well #2 was put online as the main supply well because the trichloroethylene concentration of TSF Well #2 had fallen below the MCL of 5.0 µg/L. Therefore, by using TSF Well #2, no treatment (sparger air stripping system) is currently required. TSF #1 Well is used as a backup to TSF Well #2. If TSF Well #1 must be used, the sparger system must be activated to treat the water. Current trichloroethylene levels continue to remain below regulatory limits.